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A B S T R A C T:

Title: Maternal IQ Predicts Child's Birth Weight

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Background: Prior studies correlated birth weight with child IQ. Maternal IQ correlates with IQ in her offspring. Birth weight predicted IQ in monozygotic twins dicordant for birth weight. IUGR alters global DNA methylation. IQ in mother may be a biological marker for her child's rate of intrauterine growth (birth weight).

Objective: Does maternal IQ predict her child's intrauterine growth rate (birth weight)?

Design/Methods: Births from 1970-2004 using NLSY '79 database were studied Primary variables were children's IQ score from most recent Peabody Picture Vocabulary Revised Form L test and birth weight in grams. Maternal IQ was estimated from AirForce Qualifying test (AFQT)and categorized as 75, 50-74, 25-49 and <25%ile resp. Race, economic status, singleton, gestation, use of tobacco, alcohol and other drugs were used as covariates. Multivariate models were used to assess associations of Children's IQ and birth weight with maternal IQ levels controlling for other covariates.

Results: 9,125 children were analyzed. 98.3% singleton, 12.3% preterm, and 51.2% male. Means Std's of birth weight and IQ score were 3,307 597 grams and 38 30.4 respectively.Of the total 4,121 mothers, 25.7% were blacks, 18.3% were Hispanics and 54.0% were non Hispanic non blacks(nHnB). The mean std of the AFQT was 36.9 28.1. Proportions of IQs were 13.6%, 17.2%, 27.2% and 42% from low to high IQs respectively among mothers.
Multivariate models showed children's IQ scores were related to their mother's IQ ,birth weight, race/ethnicity, and economic status. In particular, the mean children's IQ scores were 28.1, 37.1, 46.8, and 55 at mother's IQ levels from low to high respectively (p-values<0.001). Children's IQs was increased by 0.14 0.06 (slope) for every 100 gram increase in birth weight (p=0.013). Children's birth weights were positively associated with their mothers' IQ. Means birth weight increased from 3,334 grams to 3,465 grams as mothers' IQ rose from low to high (p<0.001). When sub-populations stratified by race/ethnicity were analyzed, positive relationships between childs IQ and mother's IQ were found in all Hispanic, black and nHnB groups (p's<0.001); while the positive relationship between birth weight and mother's IQ levels was found significant only in the nHnB (white) group (p<0.001). The findings held even after preterm and non singleton births were excluded from analysis.

Conclusions: Child's IQ correlates with birth weight and maternal IQ. Maternal IQ may also predict birth weight of offspring.